



FullStride® SafetyStride®

Fabrication Instructions



Design Considerations



To ensure that optimal joint alignment and function is maintained throughout the gait cycle, we recommend the use of inherently rigid materials when designing your KAFO. If you are fabricating with thermoplastics, we recommend creating corrugations in the plastic to help ensure that the joints stay aligned.

SafetyStride® KNEE JOINT ORIENTATION

When installing your **SafetyStride®** knee joint, we recommend attaching it to the lateral side of the orthosis.



SafetyStride KAFO

FullStride® AS AN AUTOMATIC SPRING LEVER LOCK

The **FullStride®** can also be setup to function as an automatic spring lever lock. To do this, install the joints so that the joint units housing the lever tips are positioned proximal to knee center.

To convert an existing FullStride KAFO, simply reverse and swap the medial and lateral joints.


Please note that the knee joint center will drop approximately 1/4" on "B" size FullStride models.



FullStride KAFO in automatic bail lock configuration

Heel Block Option

Fabrication Instructions

- 1** Determine location of heel cable receptor on positive mold.
- 2** Apply plaster build up so the heel cable receptor sits flat and does not point inward towards the leg.
- 3** Set up stirrups or ankle joints according to standard orthotic fabrication practices.
- 4** Cut out a small triangular piece of plastic to be used as a backing to sandwich the heel cable receptor inside of footplate. Skive all edges except the most proximal edge to make for a better transition (**Figure A**).
- 5** Prepare mold for vacuum forming according to standard fabricating procedures and cut plastic for KAFO. Place both sections of plastic in oven.
- 6** Cut an air wick consisting of two threads, side by side, which are approximately 1" longer than the triangular piece of plastic.
- 7** Apply foam cover to top of heel cable receptor, covering both screws.
- 8** When plastic is ready for forming, lay air wick across backing plastic so that it aligns with ankle center. Set backing block onto mold and press heel cable receptor in slightly keeping it straight with the trim line (**Figure B**). Vacuum form as normal.
- 9**  After plastic has cooled, form bars to mold using the included fabrication dummies. The $\frac{3}{8}$ " hole in the dummies indicates the center of rotation of the knee joints. The center of this hole should be aligned at the height of the anatomical knee center.
- 10** Next mark desired trim lines on plastic and cut out footplate to the top of the cover on the heel cable receptor making sure not to cut into it (**Figure C**). Carefully expose entire top of heel cable receptor (**Figure D**).

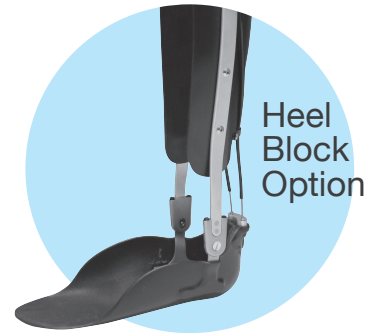


Figure A



Figure B



Figure C



Figure D

(continued on next page)



Figure E



Figure F



Figure G



Figure H



Figure I

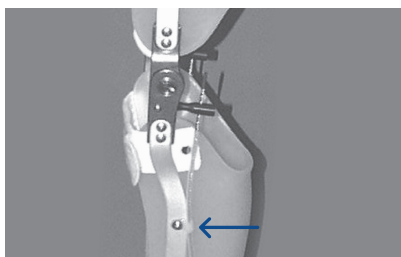
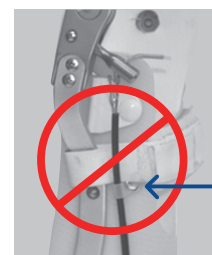


Figure J

When plastic is removed, insert the long #10-32 x 1" Phillips pan head screw (part #18) provided with the kit into the center hole between the two screw plugs and use as a lever to pull the heel cable receptor from the footplate.

- 11** Finish plastic and bars as desired.
- 12** Reassemble brace with knee and ankle joints attached. Make sure that the knee joints reach full extension and lock simultaneously.
- 13** Remove the plugs from the heel cable receptor and install cables so that the ball ends remain within the cable receptor unit (**Figure E**).
- 14** Drill a $\frac{11}{64}$ " hole into the footplate for the attachment screw located on the tail of the heel cable receptor (**Figure F**).
- 15** Install heel cable receptor, with cables, back into the cavity on the footplate being sure not to damage or kink cables (**Figure G**). When the holes in the heel cable receptor tail and plastic are aligned, insert the #8-32 x $\frac{5}{16}$ " truss head screw (part #21) provided and tighten. Check to make sure cables move up and down freely within the cavity approximately $\frac{1}{4}$ ".
- 16** Cut cable housing to desired length allowing for travel of lever tips and room for footplate adjustment. Insert cables into housing and thread through lever tips, but do not cut the cables at this time (**Figure H**).
- 17** Cable housing from heel cable receptor to lower calf section must be straight to avoid binding (**Figure I**).
- 18** Use a plastic cable clamp to mark positions of attachment holes. Once holes are marked, drill through with a #7 drill. Attach proximal cable clamp using the proximal attachment screw of the lower bar. Position the cable to run just behind the bar (**Figure J**). Insert brass bushings and fasten clamps/cables using the supplied screws. Repeat as necessary until cables are applied.
- 19** Align footplate at the desired starting angle and pull the cables above the lever tips until taut. Tighten setscrews on lever tips and cut cables leaving approximately $\frac{3}{4}$ " of cable above the lever tips for fitting adjustments.



Improper Installation of Proximal Clamp

Metal Stance Control Stirrup Option

Fabrication Instructions


- 1 Set up SC stirrups and Slim Line Double Action ankle joints according to standard orthotic fabrication practices.
- 2 Prepare mold for vacuum forming.
- 3 Vacuum form as normal.
- 4  After plastic has cooled, form bars to mold using the included fabrication dummies. The $\frac{3}{8}$ " hole in the dummies indicates the center of rotation of the knee joints. The center of this hole should be aligned at the height of the anatomical knee center.
- 5 Reassemble brace with knee and ankle joints attached. Make sure that the knee joints reach full extension and lock simultaneously.
- 6 Attach cable assembly to stirrup using the bushing and screws provided.
- 7 Cut cable housing to desired length allowing for travel of lever tips. Insert cables into housing and thread through lever tips. DO NOT cut the cables at this time (*Figure A*).
- 8 Use a plastic cable clamp to mark positions of attachment holes. Once holes are marked, drill through with a #7 drill. Attach proximal cable clamp using the proximal attachment screw of the lower bar. Position cable to run just behind the bar (*Figure B*). Insert brass bushings in remaining holes and fasten clamps/cable using the supplied screws. Repeat as necessary until cables are applied.
- 9 Align shoe/footplate at the desired starting angle and pull the cables above the lever tips until taut. Tighten set screws on lever tips and cut cables leaving approximately $\frac{3}{4}$ " of cable above the lever tips for fitting adjustments.



Figure A



Figure B

9005/9006 GX Assist Kit

Fabrication Instructions

- 1 Fabricate the brace per FullStride/SafetyStride Fabrication Instructions (**Figure A**).
- 2 Carefully replace the pivot and lever tip bushings with the longer bushings included with the GX-Assist Kit.
- 3 Install the attachment plate (**Figure B**).
- 4 Attach the center pivot screw. Shims can be placed under the screw head (if needed), to ensure a proper fit (**Figure C**).
- 5 Verify proper function of the joint.
- 6 Connect pneumatic spring on the attachment plate by inserting the pin and e-clip (**Figure D**).
- 7 If more rotation of the spring is needed, the attachment plate arm may be angled slightly (**Figure E**).
- 8 Drill a $\frac{13}{64}$ " hole proximal to joint center, 5.75" from spring attachment center. Bars must be contoured before location of hole is measured (**Figure F**).
- 9 Release clip and remove ball stud from the socket (**Figure G**).
- 10 Attach the ball stud and chicago bushing to the orthosis (**Figure H**).
- 11 Insert the ball stud back into the ball socket and secure with ball socket clip.

CAUTION

Proximal spring attachment must be in-line with joint center. Improper mounting may damage pneumatic spring. Verify spring does not limit knee joint ROM prior to use.

Do not puncture. Pneumatic spring under pressure.



Figure A



Figure B



Figure C



Figure D



Figure E



Figure F



Figure G

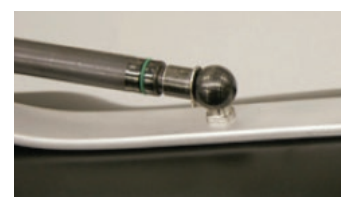


Figure H

Set Retaining Balls



Use included rubber caps to keep cable ends from fraying prior to setting retaining balls.



Figure A



Figure B

Retaining balls have been included in your kit and should only be applied after the desired gait pattern for your patient has been achieved.

RETAINING BALL INSTALLATION

Slide retaining balls onto cables within 1/8" of the lever tips. Balls can be crimped using a bench vice, or hammer and anvil to cap the cables (**Figure A**). Once crimped, cut the cables down to the retaining balls making sure no sharp edges remain (**Figure B**).

Applying Decals



To enhance the overall look of your orthosis, we have enclosed a set of knee joint decals for you to apply. We recommend you apply the decals after the fitting and gait training process is complete.

HOW TO APPLY:

Due to the strong adhesive on the back of the decals, care should be taken when applying.

First, ensure that the joint surface is clean. Then, carefully align the decal printed with the Becker logo (shield) on the screw side (front) of the midsection. Once satisfied with the placement, press firmly into place. For the second decal that is printed with "Becker Orthopedic," align with bushing side (back) of the midsection and press firmly into place.

IMPORTANT:

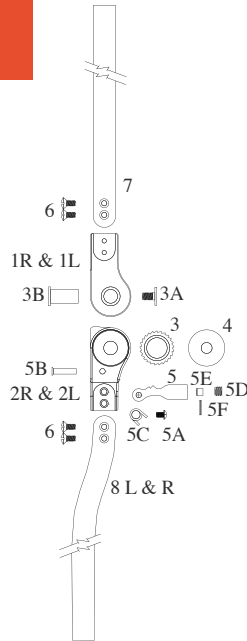
Prior to delivery, the following final assembly procedure must be performed.

Use only the high strength bar screws provided.

1. Remove bar screws, coat screws with Loctite 271 or equivalent, reassemble and torque bar screw to 40 in-lbs using Torx or Torx Plus IP25 driver.
2. Secure pivot bushing screw with Loctite 271 or equivalent.

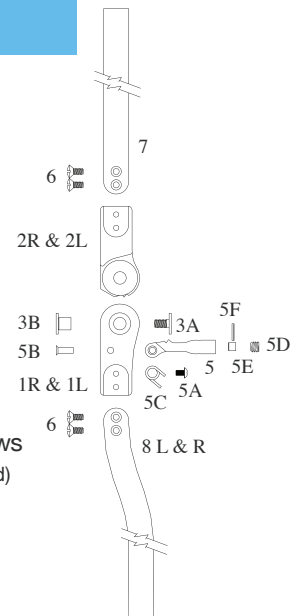
Model 9005 SafetyStride™ Components:

1. Proximal joint
2. Distal joint
3. Gear
- 3a. Center screw
- 3b. Center bushing
4. Lid
5. Lever tip
- 5a. Lever tip screw
- 5b. Lever tip bushing
- 5c. Lever tip spring
- 5d. Lever set screw
- 5e. Brass lever insert
- 5f. Brass lever insert pin
6. Upright attachment screws
(#10-32 x 1/2" Phillips oval head)
7. Proximal upright
8. Distal upright



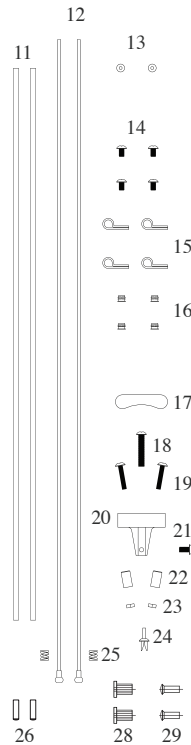
Model 9006 FullStride™ Components:

1. Proximal joint
2. Distal joint
- 3a. Center screw
- 3b. Center bushing
5. Lever tip
- 5a. Lever tip screw
- 5b. Lever tip bushing
- 5c. Lever tip spring
- 5d. Lever set screw
- 5e. Brass lever insert
- 5f. Brass lever insert pin
6. Upright attachment screws
(#10-32 x 1/2" Phillips oval head)
7. Proximal upright
8. Distal upright



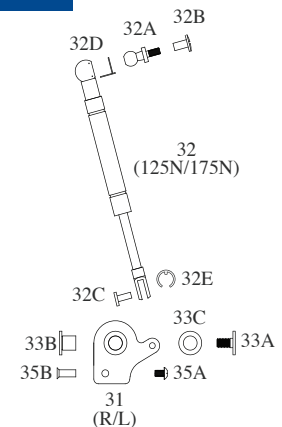
Cable System Components:

11. Cable housing
12. Stainless steel cable
13. Retaining balls
14. Cable clamp screws
(#8-32 x 1/4" Truss head)
15. Cable clamps
16. Brass bushings
17. Heel cable receptor cover
18. Heel cable receptor center screw
(#10-32 x 1" Phillips pan head)
19. Heel cable receptor plug screw
(#6-32 x 3/4" Truss head)
20. Heel cable receptor
21. Heel cable receptor attachment screw
(#8-32 x 5/16" Truss head)
22. Heel cable receptor plugs
23. Heel cable receptor plug hex nuts
24. Heel cable receptor finishing plug
25. Heel cable spring
26. Rubber cap
28. SC stirrup bushing
29. SC stirrup screw



Model 9005/9006-GX GX-Assist Components

31. Attachment Plate
32. Pneumatic Spring
- 32A. Ball Stud
- 32B. Chicago Bushing
- 32C. Rod Clevis Pin
- 32D. Ball Socket Clip
- 32E. E-Clip
- 33A. Pivot Screw
- 33B. Pivot Bushing
- 33C. Plastic Shims
- 35A. Lever Pivot Screw
- 35B. Lever Pivot Bushing



Scan code for additional
product information:



To order replacement parts,
please specify your original
order number, right or left,
medial or lateral, followed by
the part number desired.



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